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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,583	09/21/2001	Mark S. Manasse	200301992-1	5458

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EXAMINER

SETH, MANAV

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/960,583	MANASSE ET AL.	
	Examiner	Art Unit	
	Manav Seth	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 14, 15, 28 and 29 is/are rejected.
- 7) ☒ Claim(s) 2-13 and 16-27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment received on June 21, 2005 has been entered in full.
2. Applicant's amendment to the specification has been entered and based on the amendment objection on the specification has been withdrawn.
3. Applicant's arguments with respect to rejected claims as presented in the amendment filed have been fully considered but are moot in view of new ground(s) of rejection(s).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 14, 15, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daugman, U.S. Patent No. 5,291,560, further in view of Soutar et al., 1999, "Biometric encryption".

Regarding claims 1, 15 and 29, Dougman's invention is directed to biometric personal identification system based on iris analysis (title) and further teaches biometric identification by comparing the input biometric code (a feature vector) to the biometric codes (feature vectors)

associated with different biometric samples (eyes) stored in the database (col. 3, lines 15-20). It is a well-known fact that **a database cannot be accessed without a query** being created and inputted, therefore it would be evident to a person of ordinary skill in the art to create query before accessing a database. The same well known fact has been used in well-known biometric personal identification systems, where, when an biometric sample such as eye or finger is scanned, the system software as configured by the software programmer, would identify several characteristics of the biometric sample and represent these several characteristics associated with biometric sample in digital form forming feature vectors, which further are used for query purposes. It should be noted that the computer systems as well known would only understand the computer language (binary or digital language) and all the data to be used as query (such as eye or fingerprint scanned image) has to be converted into the digital form by some software. A biometric identification cannot be performed without defining the feature vectors of the characteristics. **Dougman does not specifically disclose the words like “characteristics” and “feature vectors”, therefore examiner cites Soutar to further provide the support for the above well-known facts, as Soutar is directed to the same field of biometric identification.** Soutar discloses “Biometric identification consists of two stages: enrollment and verification. During the enrollment stage, a sample of the designated biometric is acquired. Some unique characteristics or features of this sample are then extracted to form a biometric template for subsequent comparison purposes. During the verification stage, an updated biometric sample is acquired. As in enrollment, features of this biometric sample are extracted. These features are then compared with previously generated biometric template” (page 2, para. 3). Soutar further discloses “Alternatively, in the process of biometric authentication the user submits an identity claim (query) to the system” (page 2, last para). Soutar further discloses “For both the identification and the authentication systems, **a threshold**

will generally be used to determine the match between templates. The setting of this threshold determines the discrimination sensitivity of the system” (page 3, para 1). Soutar further discloses “Even for a single biometric, such as the fingerprint, there are many methods used to create the biometric template. For example, law enforcement has traditionally used a method of extracting and comparing minutia points from the fingerprint. Minutiae points are locations where a fingerprint ridge ends or splits in two. Other fingerprint characteristics are sweat pore location, ridge density, and distance between ridges. In other systems, the entire fingerprint image may be processed to implement a pattern recognition process, such as correlation” (page 3, para. 2).

All above discussed well-known facts have been disclosed by Dougman’s reference and are discussed below in further view of claims 1, 15, and 29 limitations.

Dougman discloses “First, the system acquires through a video camera a digitized **image of an eye of the human** to be identified” (col. 2, lines 53-54) from which it is evident that **the eye being an query biometric sample**. A biometric vector as well known is nothing but a vector space of characteristics that represents a biometric sample, and in general, for any object if it has to be defined, a set of characteristics are required and these characteristics together are a part of a vector space as they possess x and y coordinates (magnitude and direction) and inherently a query biometric sample would be associated and represented by a query biometric vector to describe its characteristics.

Dougman further discloses “Then it isolates the iris if it is present within the image and defines a **circular papillary boundary between the iris and pupil portions of the image**, and it defines another **circular boundary between the iris and sclera portions of the image**,It then defines a **plurality of annular analysis bands within the iris image**.....” (col. 2, lines 55-

68) where a **circular boundaries (shape) and plurality of annular analysis bands (number) within the iris image** being a set of characteristics comprised in query biometric vector.

Dougman further discloses “The portion of the iris image lying within these annular analysis bands is analyzed and encoded employing a special signal processing means comprising a multiscale, self-similar set of quadrature bandpass filters in polar coordinates, to **generate an iris code** of fixed length and having a universal format for all irises” (col. 3, lines 1-6) where **generating an iris code is generating is generating a query feature vector** from a query biometric vector that represents said query biometric sample. Dougman further discloses an iris code (query feature vector) further comprises a plurality of features by disclosing “The system then processes the data obtained from **the area** to generate an identification code” (col. 9, lines 25-32) and “the **texture** of the iris is always encoded into essentially the same iris code, regardless of the degree of papillary dilation, and regardless also of the overall size of the iris image” (col. 9, lines 48-51) where **area and texture** represents the plurality of features comprised in the query feature vector.

Further emphasis added on (Abstract, Lines 3-11; Figure 2, analysis bands 112; Column 3, Lines 1-20; Column 8, Lines 15-64).

Dougman further discloses comparing said query feature vector to a plurality of target feature vectors, each target feature vector representing a respective target biometric sample (Abstract, Lines 16-24; Column 3, Lines 10-20);

Dougman further discloses wherein, a target biometric sample is a potential match to said query biometric sample when a threshold number of features in the target feature vector that corresponds to said target biometric sample are identical to features in said query biometric vector (Figure 5; Column 3, Lines 10-20; Column 12, Lines 54-68, Column 13, Lines 1-20; Column 15,

Lines 29-38) and further adding emphasis on lines 65-68 of col. 4 where Dougman teaches of calculating confidence level.

Dougman does not specifically use the word “characteristics” and “query feature vectors” but in view of the very well-known facts, as also described by Soutar, as discussed before, it would have been obvious for one of ordinary skill in the art at the time of invention was made to use such biometric descriptors as defined with concentrating on the same subject.

Regarding Claim 14, Daugman further discloses the method of Claim 1, wherein the comparing includes:

extracting from a database a set of target feature vectors, each extracted target feature vector including at least one feature that is in common with a feature in said query feature vector (Column 12, Lines 29-41) and also see Soutar’s disclosure as discussed in rejection of claim 1;

locating each target feature vector in the set of target feature vectors in a count hash table, the count hash table including target feature vector identifications corresponding to target feature vectors that share at least one feature in common with the target feature vector (Column 12, Lines 41-68, Column 13, Lines 1-25); and

incrementing the count of matching features for each located target feature identification (Figure 12; Column 16, Lines 25-68, Column 17, Lines 1-39).

Daugman does not explicitly disclose the count hash table including a count of matching features for each target feature vector represented by the table but it is very well known the use of count hash table in identification and verification purposes and is further taught by Soutar (page 15 and 16, figures 22-1 and 22-2, Stage E3 and stage V3). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate Soutar’s teachings in

Daugman hash table depicted in Figure 12 to teach the count hash table including a count of matching features for each target feature vector represented by the table because it will provide more accurate detection results by implementing this fundamental hash procedure.

With regards to Claim 28, arguments analogous to those presented for Claim 14 are applicable to Claim 28.

Allowable Subject Matter

Reasons of Allowance:

6. Claims 2-13 and 16-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons of allowance:

Regarding claims 2, 6, 16 and 20, Daugman discloses the method of Claim 1, wherein the generating comprises: extracting a set of tiles that represents said query biometric sample, each tile including a plurality of characteristics (Figure 2, analysis bands 112; Column 8, Lines 15-24); assigning an identification element to each said tile in said set of tiles (Figure 2, analysis bands 112; Column 8, Lines 49-64. Each analysis band (tile) is identified by its polar coordinates, angular coordinate between 0-360 degrees and radial coordinate between 0-1.); selecting a predetermined number of the identification elements (Column 9, Lines 26-29). The limitation "partitioning the selected identification elements into a plurality of partitioned groups" as recited in claim 2 and similarly in claims 6, 16 and 20 are not disclosed or suggested by prior art of record.

Therefore, claims 2, 6, 16 and 20 are allowed. All other claims depending on claims 2, 6, 16 and 20 are allowed at least by dependency on claims 2, 6, 16 and 20.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These prior art references are fully applicable to reject independent claims of this application.

- Boles et al., IEEE Publication, 1998, "A Human identification technique using images of the iris and wavelet transform".
- Zhu et al., IEEE Publication, 2000, "Biometric personal identification based on iris pattern".
- Williams, IEEE Publication, 1997, "Iris recognition technology".


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manav Seth whose telephone number is (571) 272-7456. The examiner can normally be reached on Monday to Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2625

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manav Seth
Art Unit 2625
September 28, 2005


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